

ECOSYSTEM- BASED DECISION SUPPORT TOOLS FOR FISHERIES MANAGEMENT

February 14-18, 2005
Key Largo, Florida

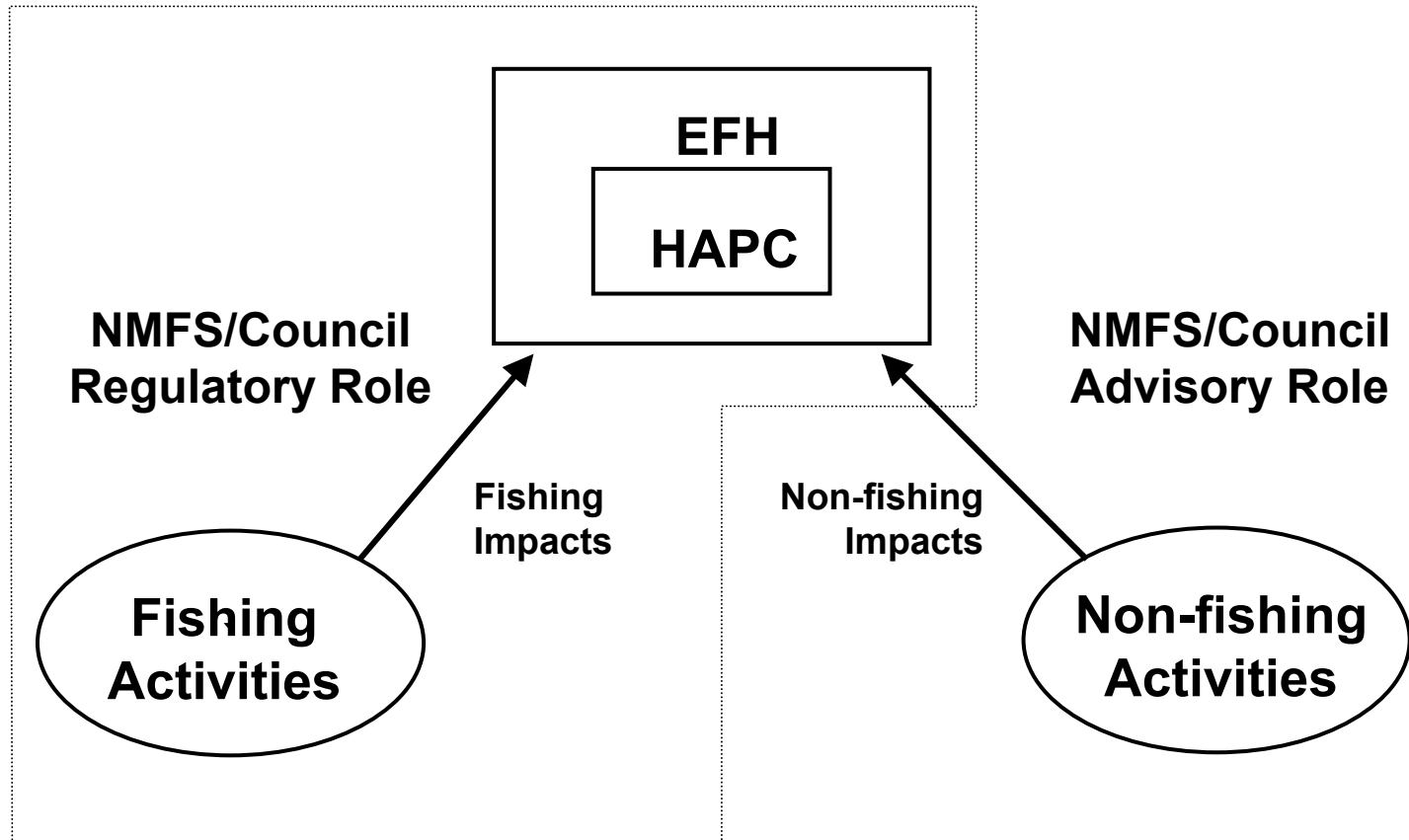
Steven Atran



GULF COUNCIL NEEDS AS CASE HISTORIES

Robert Shipp

The regulatory and advisory roles of the Gulf Council and NMFS related to essential fish habitat



DATA

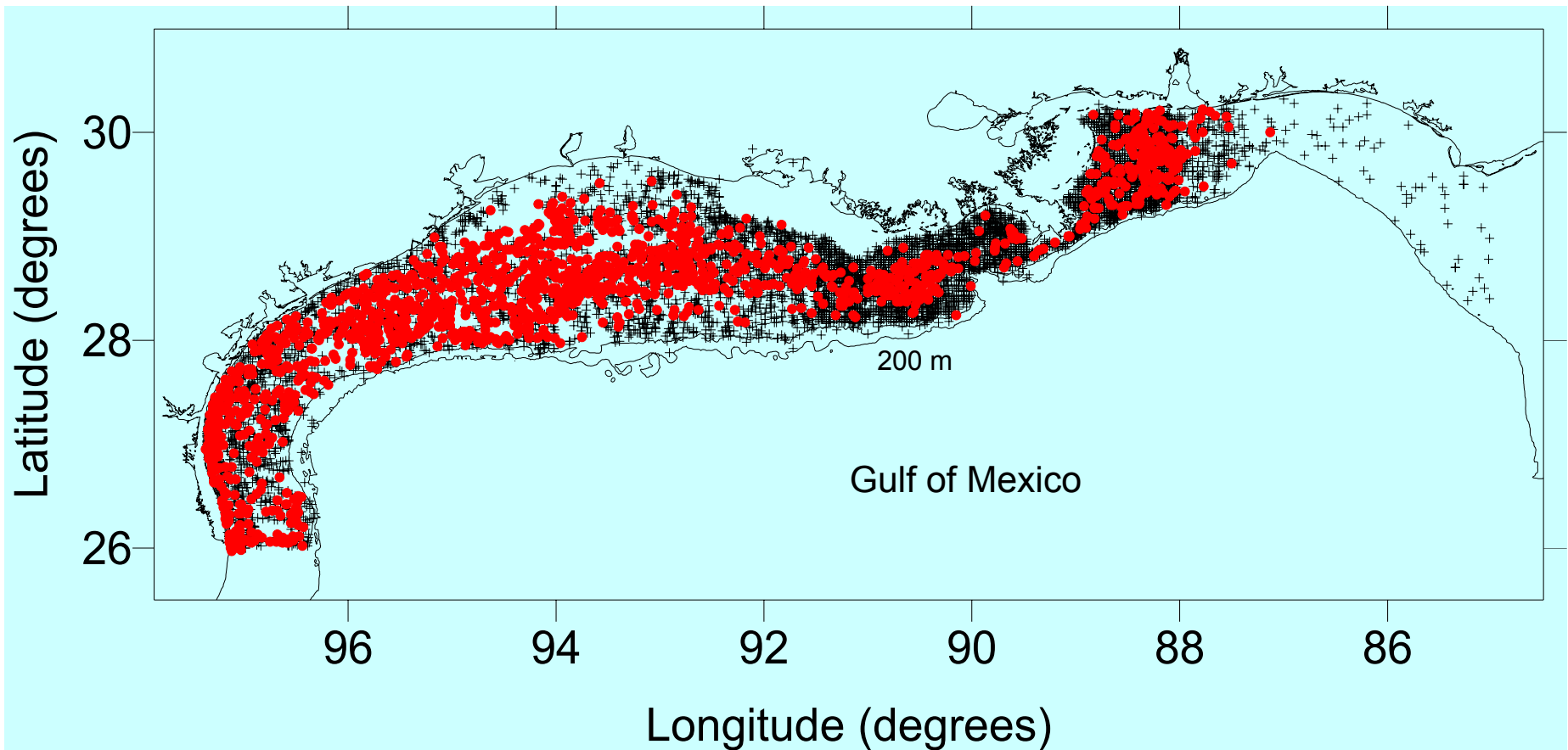
Summary of Fishery Independent Surveys

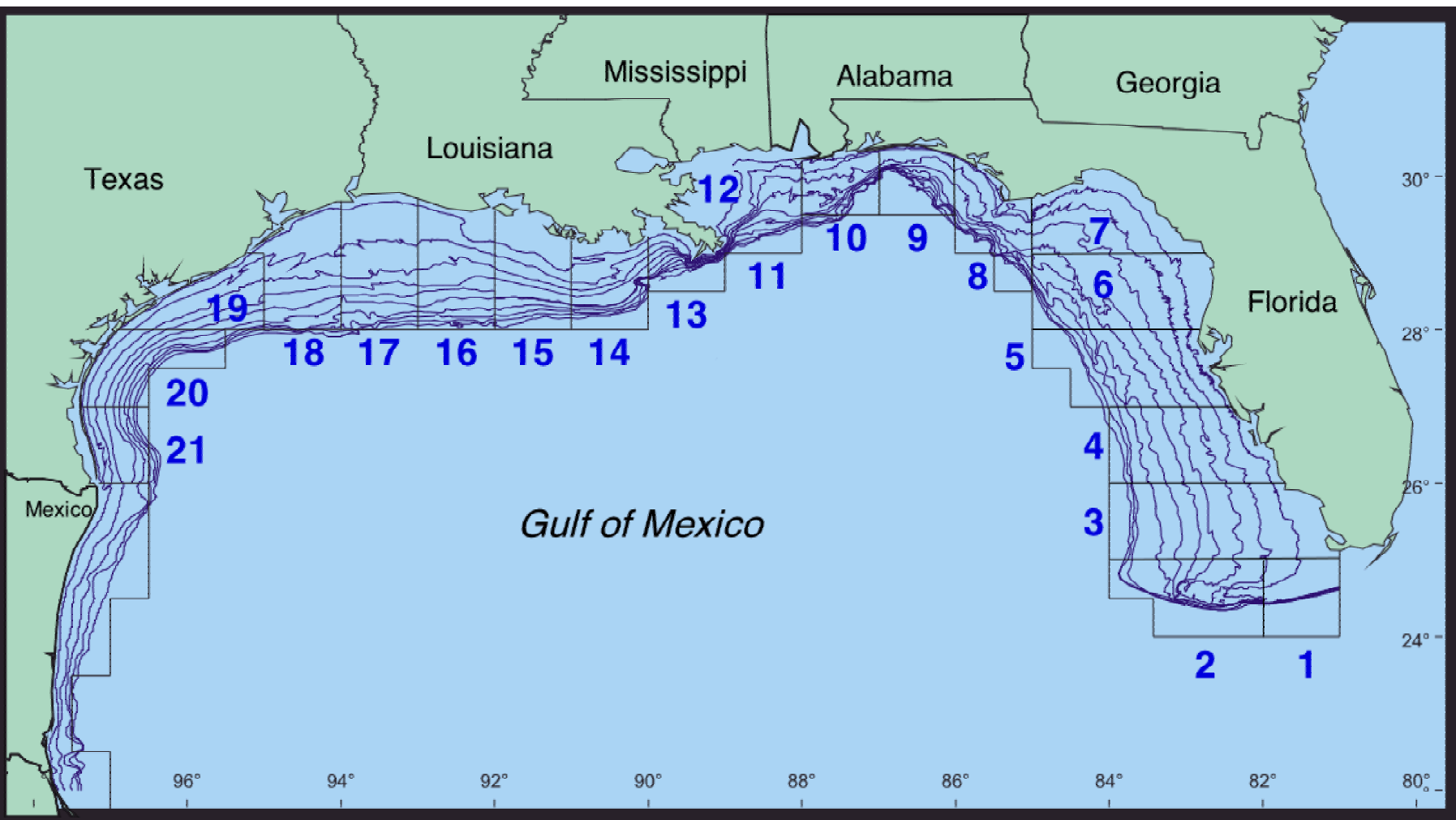
- Shrimp Groundfish Surveys
- Small Pelagics Survey
- SEAMAP Ichthyoplankton Surveys
- SEAMAP Reef Fish Survey
- Shark/Snapper/Grouper Longline Survey

Juvenile Indices (Trawl Surveys)

- Fall Groundfish
- Summer Groundfish
- Small Pelagics Survey

Trawling effort included in Fall Groundfish trawls (crosses) and stations where red snapper were collected (red circles), 1972 - 2002.





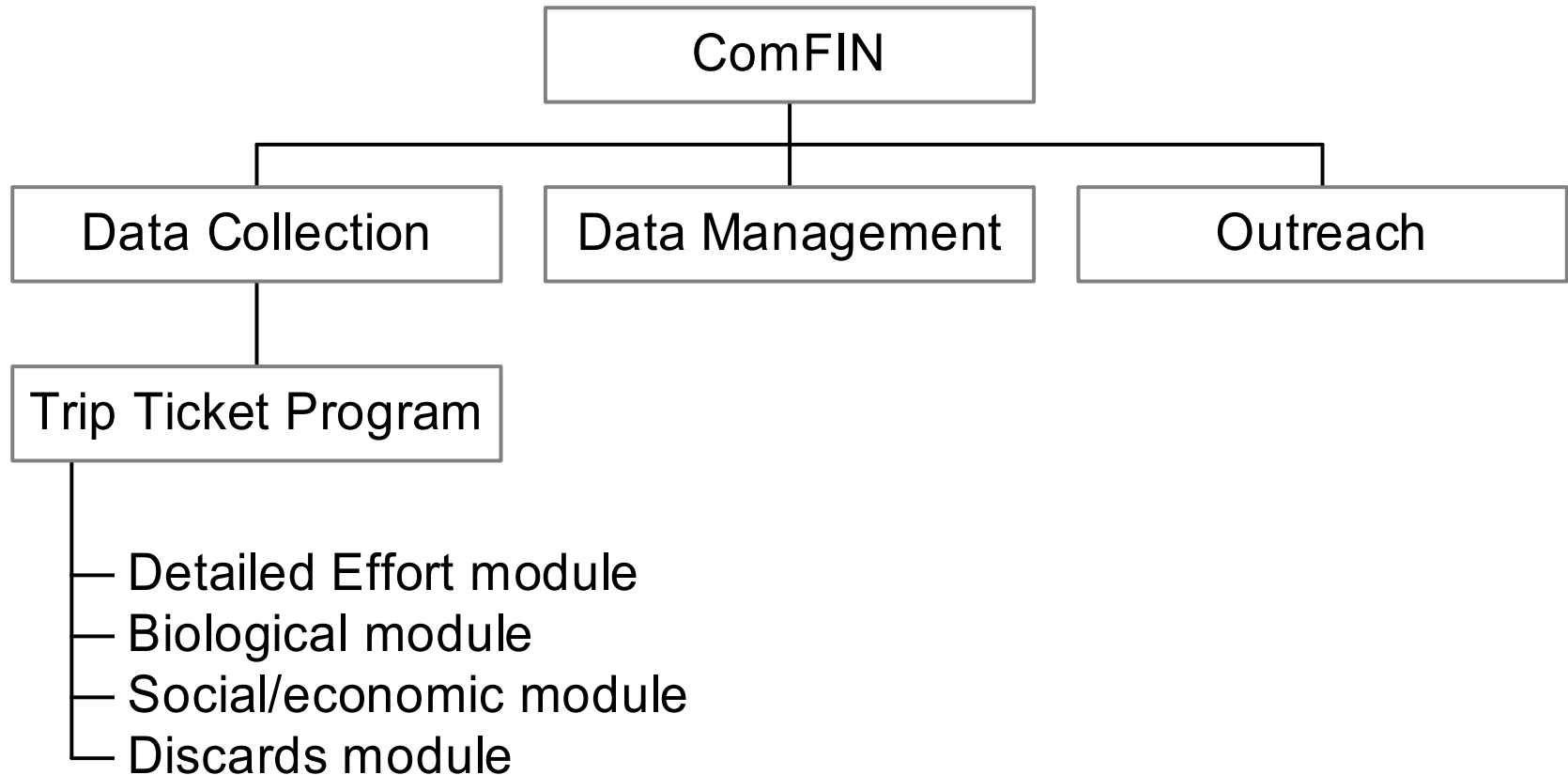
Gulf of Mexico Depth Areas

Fisheries Information Network (FIN)



- A State/Federal Cooperative Program for the Collection, Management and Dissemination of Commercial and Recreational Fisheries Data
- Commercial Fisheries Information Network (ComFIN)
- Recreational Fisheries Information Network [RecFIN(SE)]

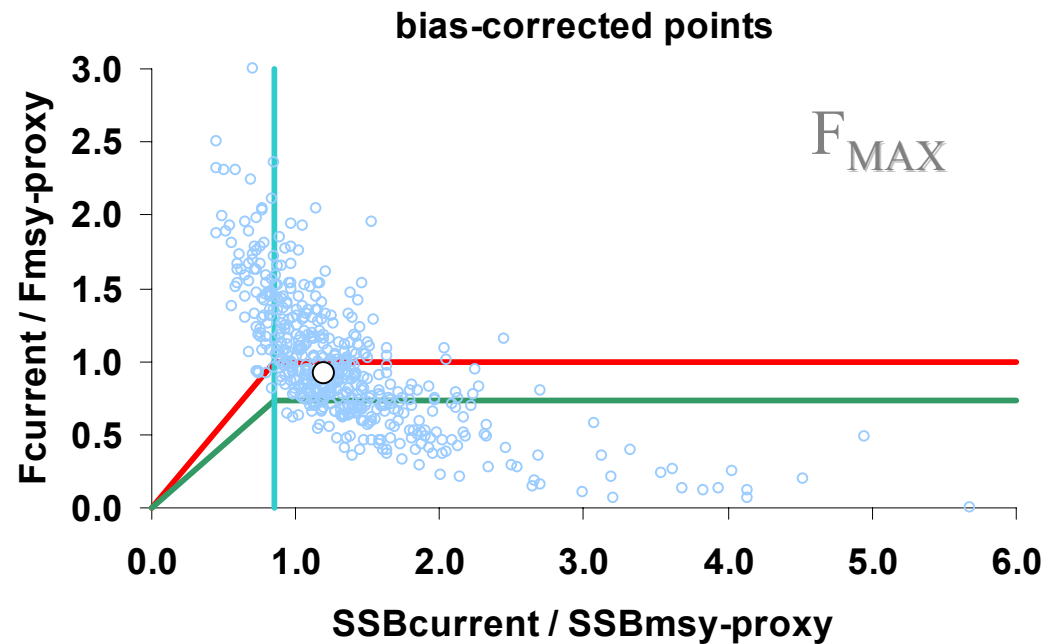
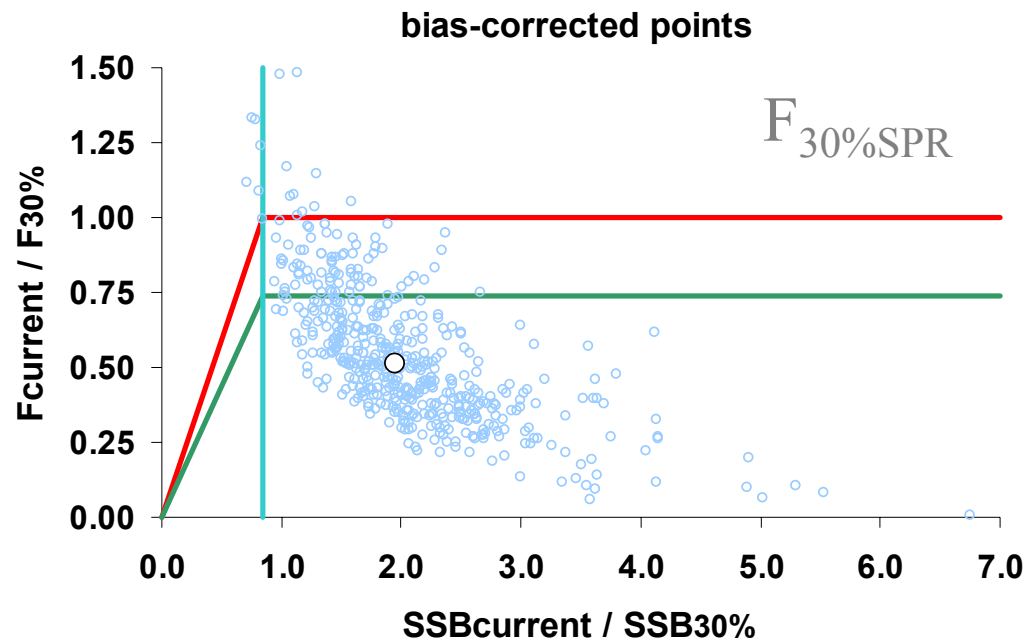
ComFIN Organizational Structure



GETTING AWAY FROM THE LINE

Gag control rule plots from most recent stock assessment

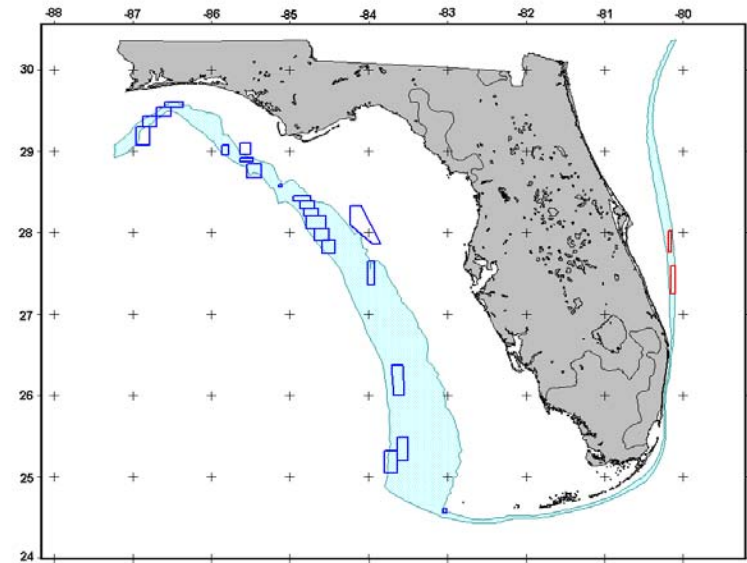
Page 24

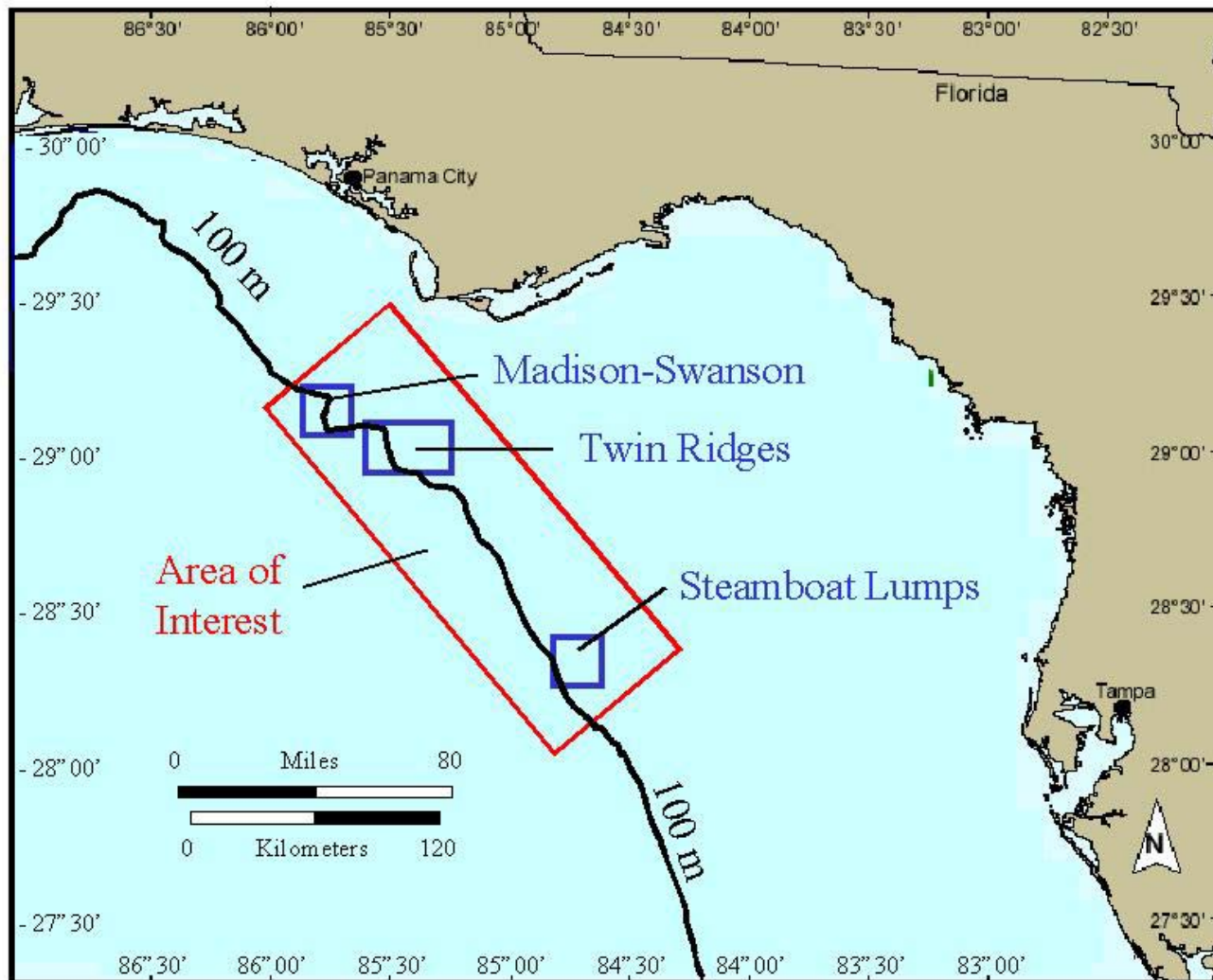


ECOSYSTEM REALATED ISSUES

Where to site reserves

- **Where is spawning concentrated?**
- Where is fishing concentrated?



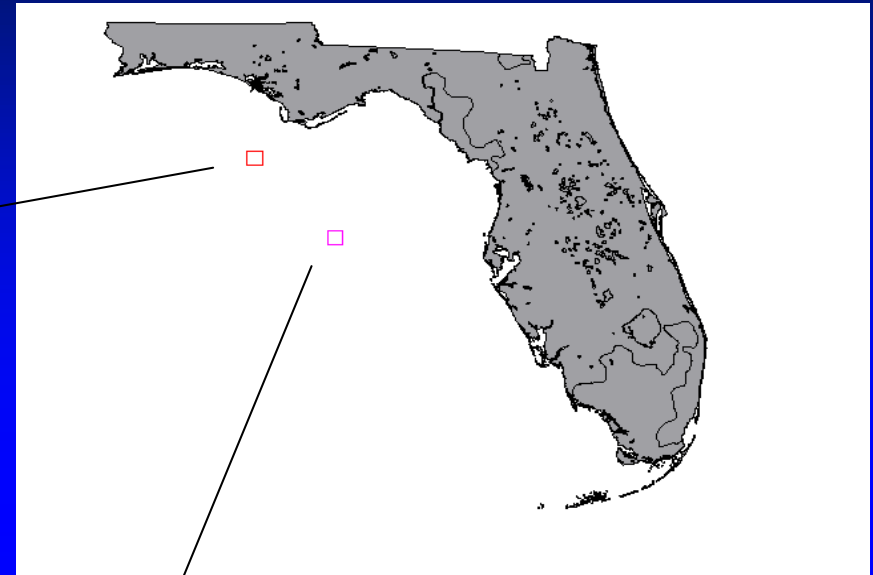
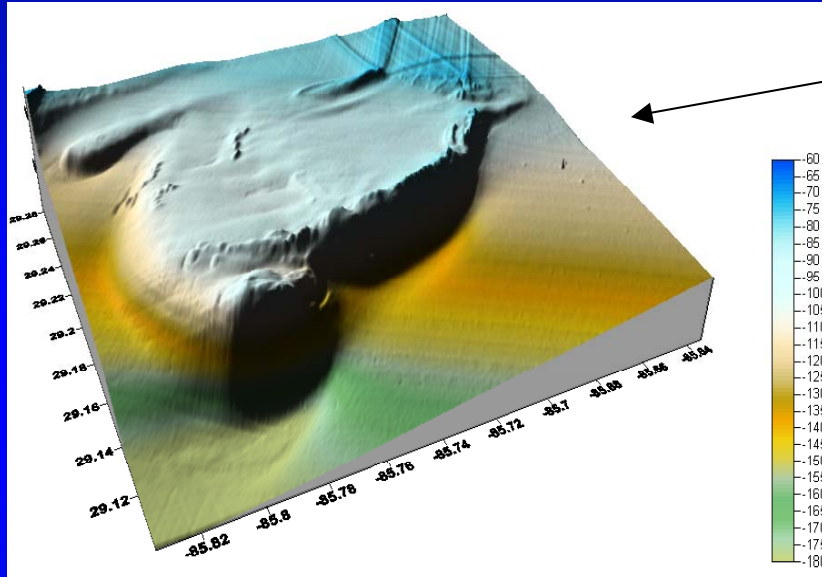


Frequently observed taxa at Madison-Swanson (n=41).

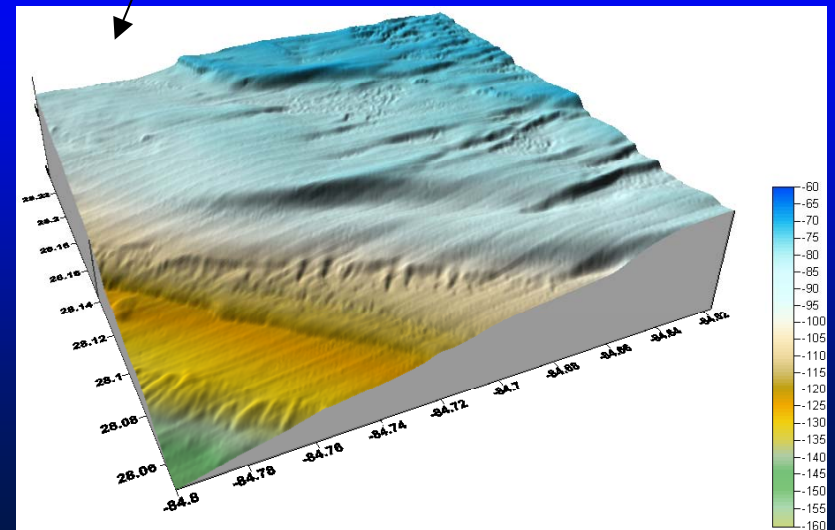
		Frequency		Number per hour	
		Mean	SE	Mean	SE
1	Greater amberjack	0.44	0.078	12.80	4.96
2	Scamp	0.34	0.075	26.27	10.32
3	<u>Red porgy</u>	0.34	0.075	<u>77.46</u>	25.81
4	Red snapper	0.27	0.070	23.40	17.20
5	Tattler	0.24	0.068	2.79	1.02
6	Blue angelfish	0.24	0.068	3.37	1.36
7	<i>Seriola sp.</i>	0.22	0.065	2.85	1.62
8	Red grouper	0.20	0.063	0.88	0.35
9	Almaco jack	0.20	0.063	6.15	3.96
10	<u>Vermilion snapper</u>	0.15	0.056	<u>88.77</u>	77.62
11	<i>Mycteroperca sp.</i>	0.12	0.052	0.95	0.44
12	Gag	0.10	0.047	0.95	0.53
13	Lesser amberjack	0.07	0.041	8.41	5.88
14	Warsaw grouper	0.02	0.024	0.37	0.37
15	<i>Lutjanus sp.</i>	0.02	0.024	0.07	0.07

Marine Reserves in the Northeast Gulf of Mexico

Madison-Swanson



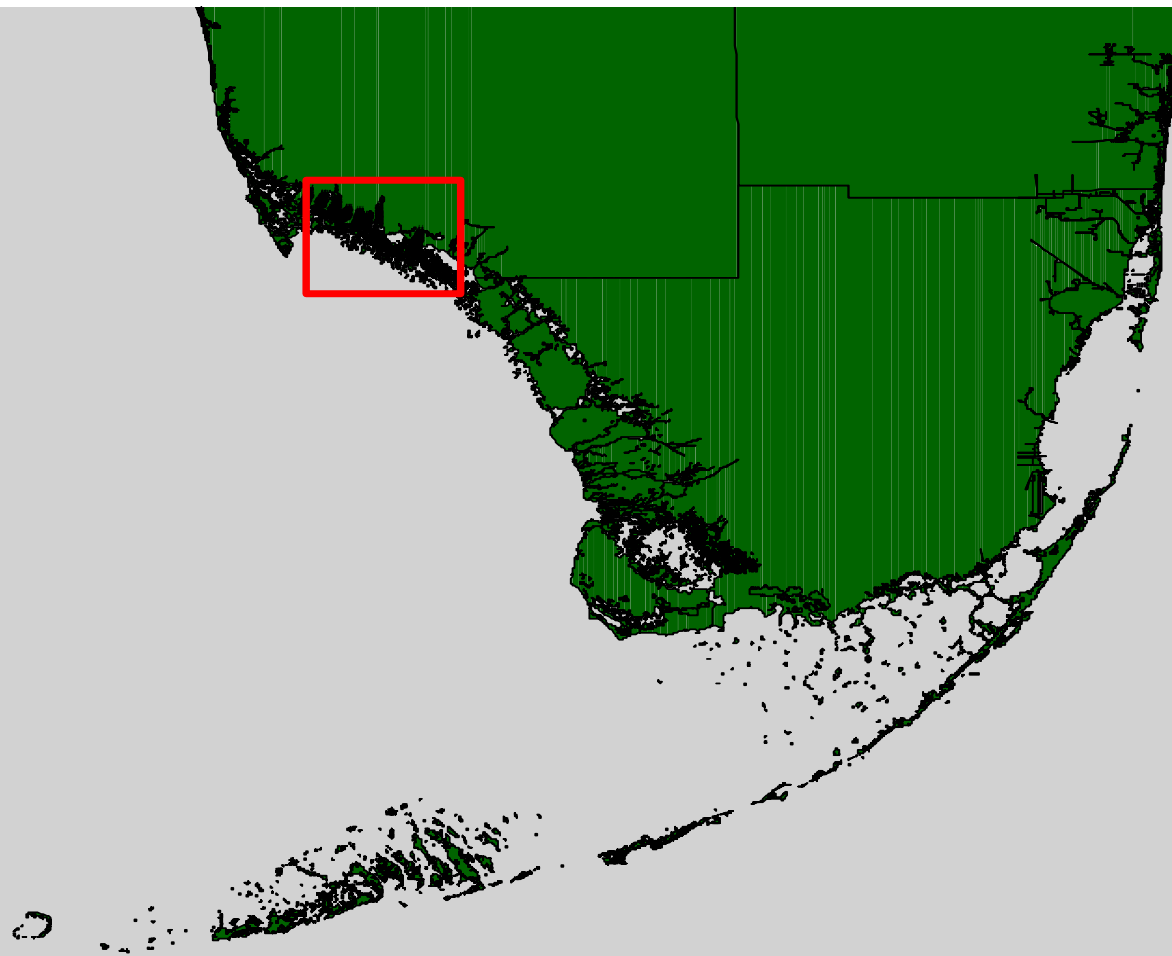
Steamboat Lumps



Goliath Grouper

(*Epinephelus itajara*)



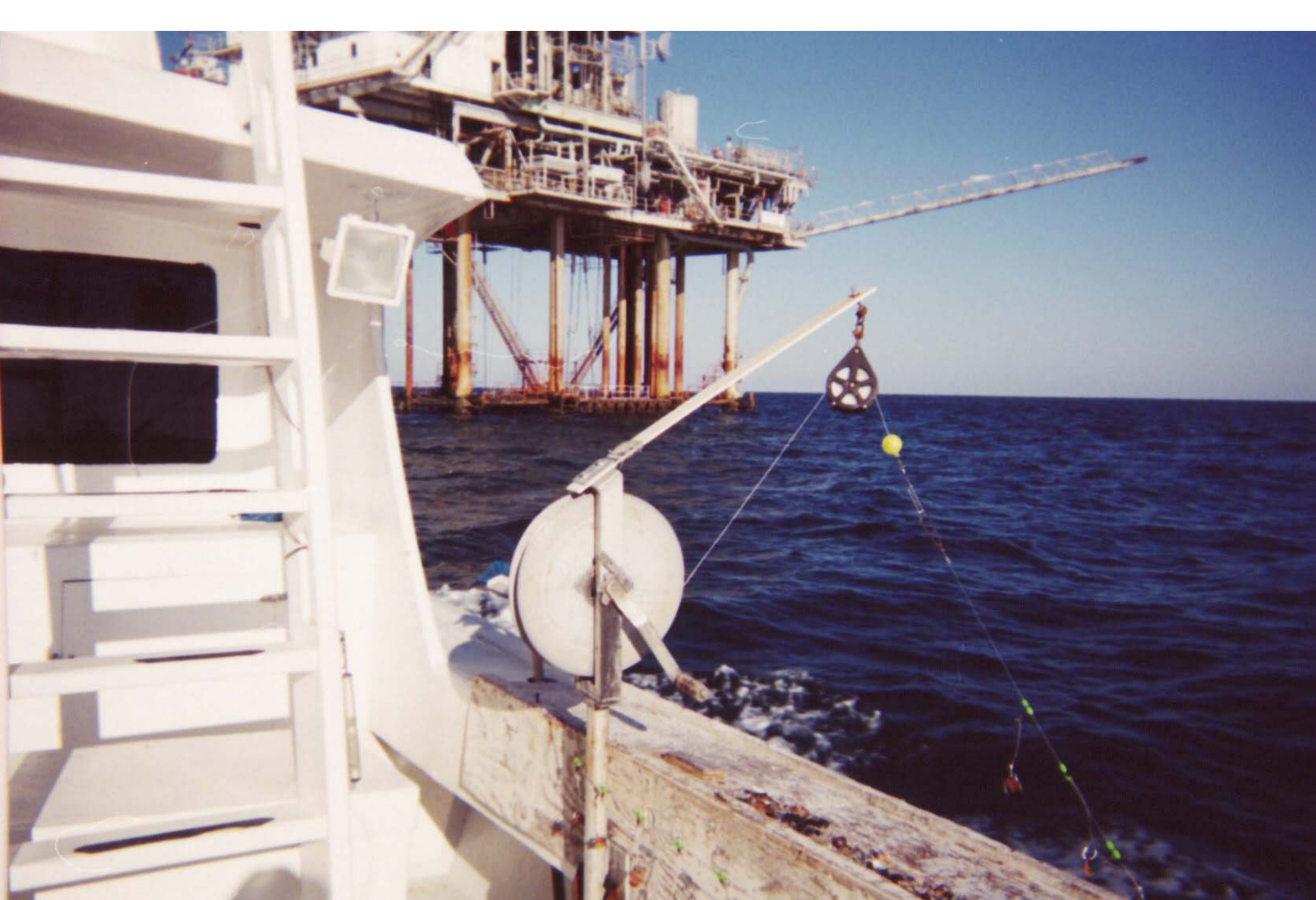


JEWFISH STUDY AREA
10,000 ISLANDS

NATIONAL ARTIFICIAL REEF PLAN

- **U.S. Army Corps of Engineers**
 - ◆ Regulatory program
 - **National Marine Fisheries Service**
 - ◆ Authority over plan development only
 - **States**
 - ◆ Program development and management
-
- The draft revision places stronger emphasis on the habitat implications of artificial reefs than other functions or outcomes
 - Past artificial reef development efforts have focused primarily on increased and enhanced access to fishery resources

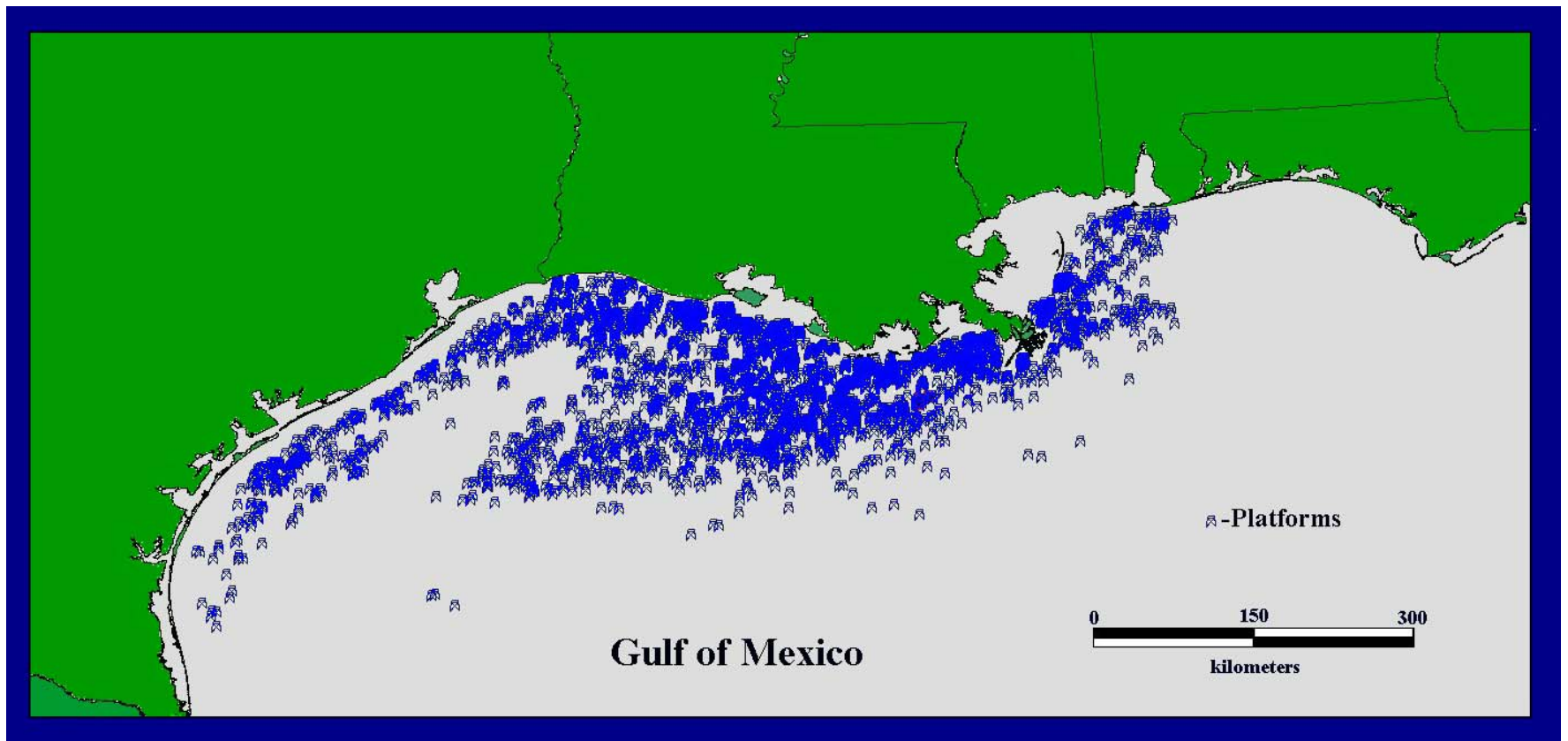




Gulf of Mexico Snapper Fishery Historical Perspective

- Data for following years very sparse, but commercial catch records available from the 1920s on. Reliability suspect, but probably give a good ball park estimate.
- 1923, Jordan and Evermann. ...”it’s centre of abundance is in the Gulf of Mexico, in rather deep water on the rocky banks off the west coast of Florida and the coasts of Campeche and Yucatan.”
- 1933, Louisiana Dept. of Conservation...”The center of the snapper fishery is in Florida...the total catch in 1929 was 9,987,000 pounds...the center of this fishery lies east of Louisiana.”
- Maximum commercial harvest around 8,000,000 pounds.

Northern GOM Petroleum Platforms



Potential post-release predators

Fishes

Greater amberjack

King mackerel

Sharks

Barracudas

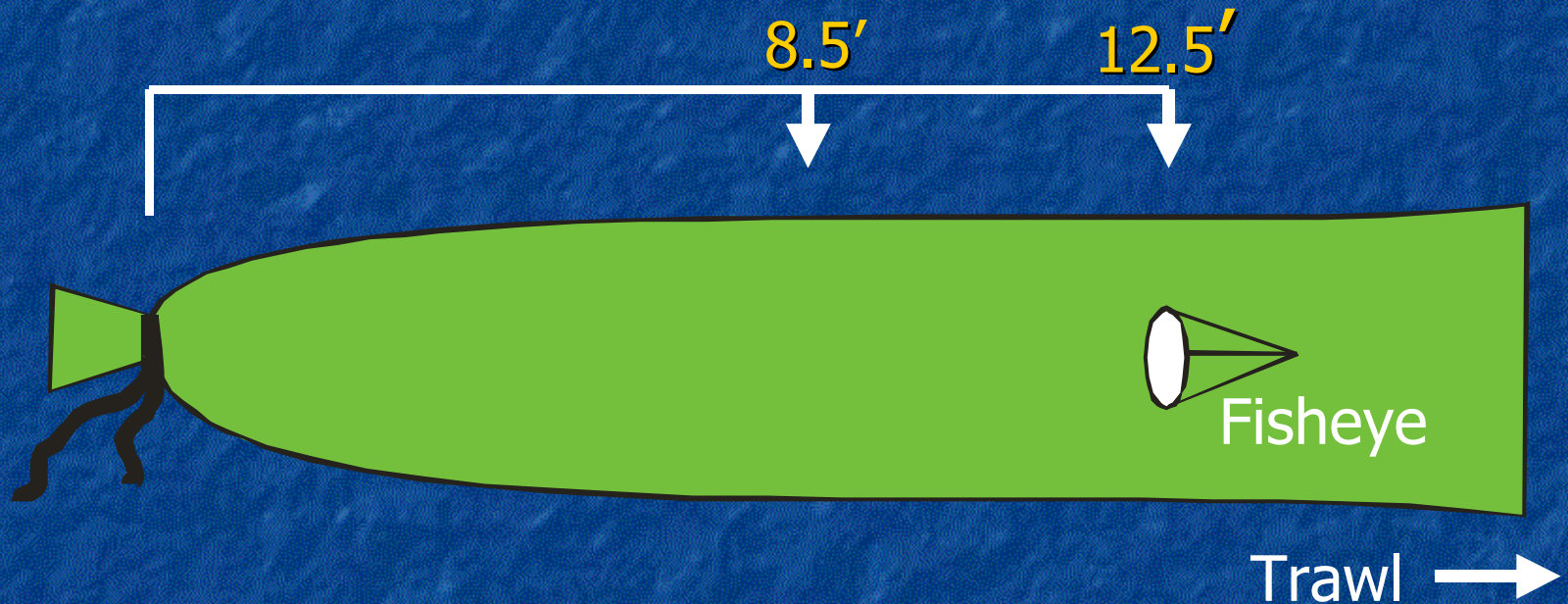
Red snapper

Groupers

Dolphins

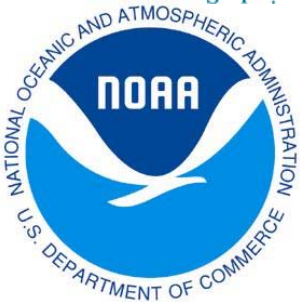
Pelicans

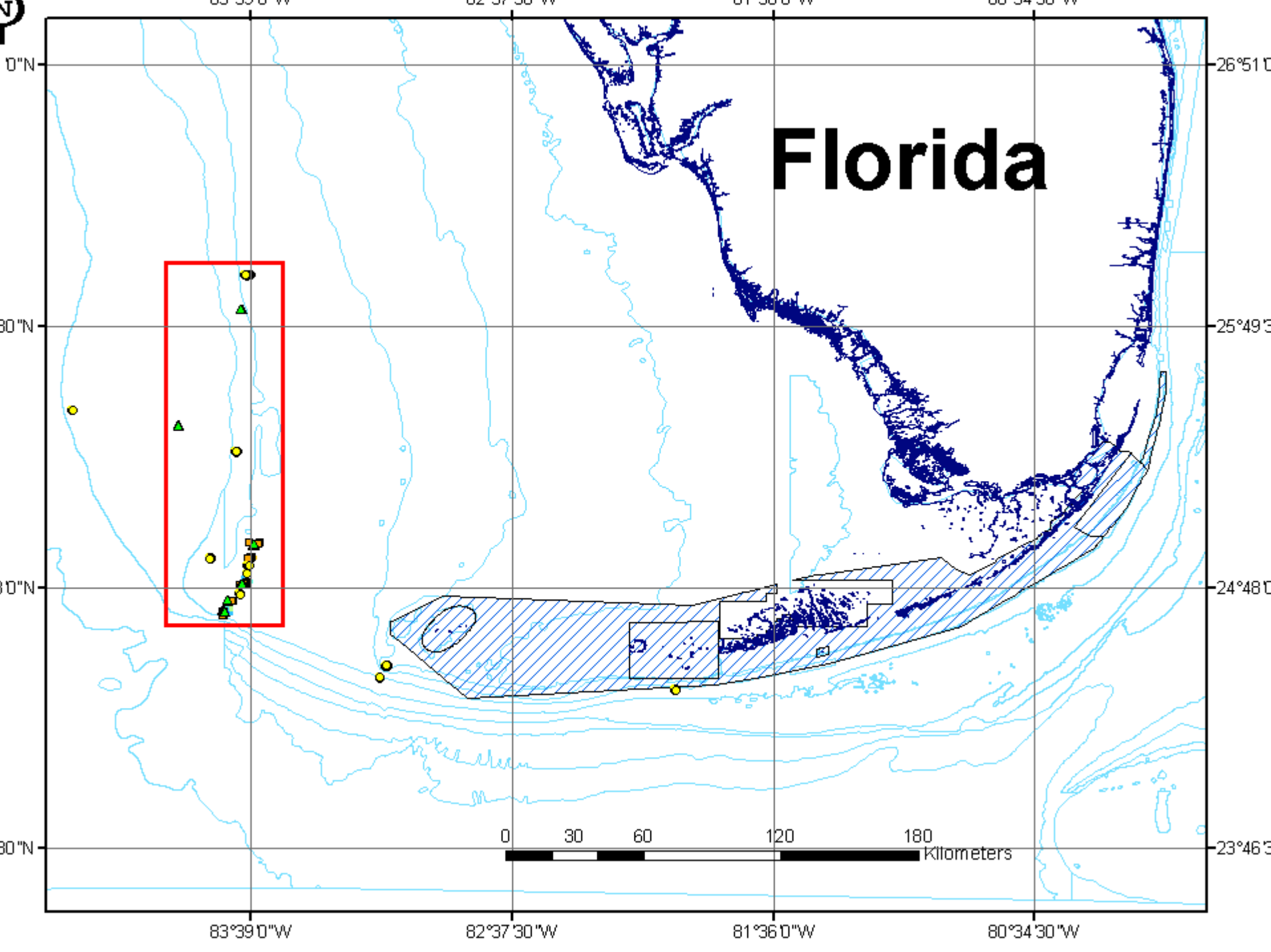
Gulf Fisheye Installation

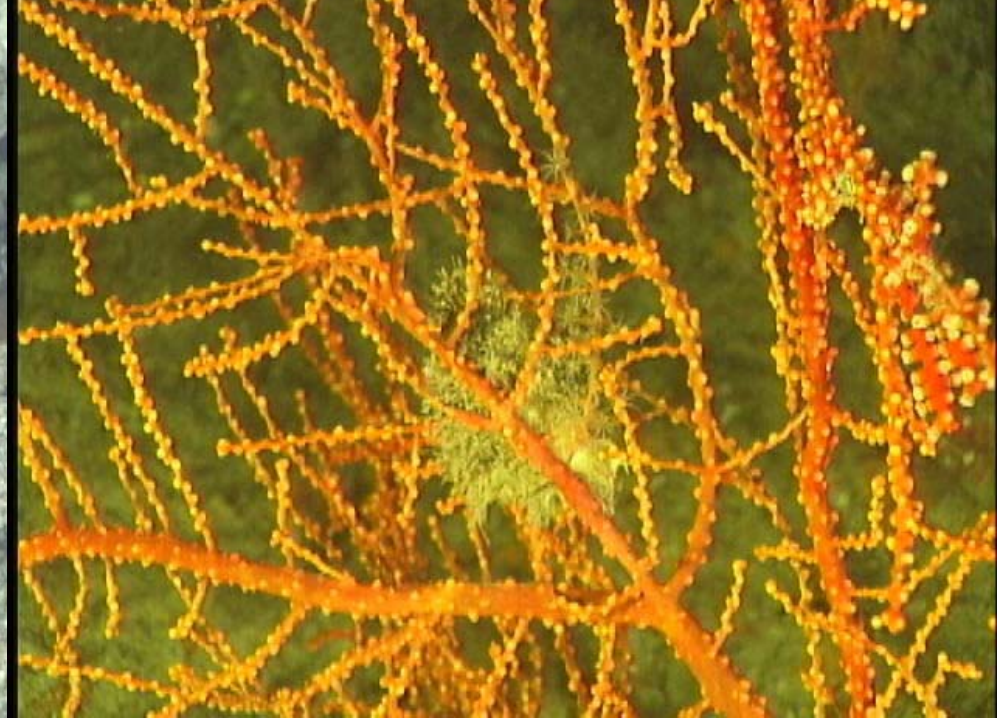


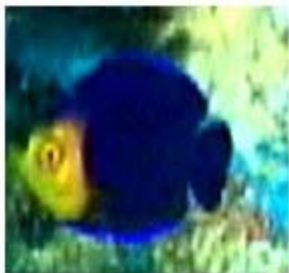
Pulley Ridge: Deepest US Coral Reef

Robert B. Halley











Active red grouper habitat

Neglected red grouper habitat



Issues That may Lend Themselves to an Ecosystem Based Approach

- Shrimp trawls \leftrightarrow Red Snapper \leftrightarrow Vermilion Snapper
- LNG Terminals \leftrightarrow Estuarine dependent species
- Shallow-water grouper \leftrightarrow Deep-water grouper
- Minor grouper/snapper species (data poor)

Impacts of Periodic Ecosystem Events

- Tropical storm/Hurricane effects
- Red tide effects
- Hypoxic (Dead) Zone effects

Steven Atran



Robert Shipp